ANESTHESIA FOR HEAD OPERATIONS*

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OPERATIONS about the head, especially those on nose and throat, are being performed with increasing frequency and skill, and it may be of interest to review anesthetic procedures and preferences for such cases, especially for those presenting unusual difficulties. Anesthesia for brain surgery will not be discussed. The figures mentioned will be for the period from January 1, 1925 to May 1, 1928, a space of three years and four months, and cover 4238 cases, given by the various members of our staff.

ANESTHESIA FOR EYE WORK

When a general anesthetic is to be used for eye operations, the matter of preparation of the patient is of vital importance. In these cases it is especially necessary that no food be allowed before operation for at least six to eight hours and nothing to drink for four to six hours, as vomitus may run into the eye, contaminating the wound; and the strain and effort of vomiting may eviscerate an eye which has been incised as in cataract operations.

When not contraindicated, as in glaucoma, a preliminary hypodermic of morphin and atropin is a valuable aid, for eye patients are usually more nervous than the average and often seem to have a larger amount of mucus. When mucus is excessive during the operation, suction is of great value.

The anesthetist must keep out of the operator's way, and accomplishes this most readily by remaining on one side about at the level of the patient's forearm. The usual signs of anesthesia can seldom be noted, as the face and eyes cannot be observed without interfering with the operative work. The anesthetist is accordingly obliged to follow the respiration as the main and almost the only guide for depth and maintenance. Color can be watched at the finger nails, and the pulse at the wrist.

When ether is used, our favorite technique is to anesthetize the patient with a nitrous oxid-oxygen ether sequence, and then insert a wire airway and administer ether-oxygen vapor through a mouth hook placed at the side of the airway. It has been found advisable to support the chin with one hand during the course of the operation, for although the position of the head and the light anesthesia are usually such that chin and tongue are not so far relaxed as to obstruct breathing, nevertheless the surgeon's work is so delicate that he must frequently support his hand to steady it and have a convenient fulcrum. Even the gentlest pressure is often sufficient to depress the chin and either to stop respiration temporarily or, in patients with much mucus, produce irritation of the pharynx with resultant coughing and vomiting.

Fifty-five of the above eye patients were given N_2O-O; a few, because it was indicated by some condition as diabetes, but most because the operation was short, or the patient desired gas, or because the eyeball was to be incised during the operation and it was desired to have the return to consciousness smooth and uneventful with no, or at least a minimum of straining, moving about or vomiting. The latter operations are performed with the patient on the ambulance on which he has been brought to the operating room, so that he will be moved as little as possible later. Gas anesthesia is usually continued until after the pads and bandages have been applied to the eyes to keep the patient asleep until the dressings are completed and firm.

The mouth gas mask has proved convenient for use during eye work. It permits the anesthetist to be sufficiently out of the operator's way, and in eye work is simpler to use than a nasal or mouth tube for intrapharyngeal administration. Plugging the nostrils with cotton pledgets as soon as the ordinary mask has been removed and the mouth inhaler inserted, is of help. The gas pressure used is a little higher than for the ordinary case with closed mask, but considerably less than that needed for dental anesthesia.

When gas anesthesia is chosen for eye work we often instil a drop or two of 4 per cent cocain in the eye after the anesthetic has begun. This facilitates work, especially in nervous patients.

ANESTHESIA FOR NOSE AND THROAT WORK

In the period under consideration 2824 tonsillectomies were performed under a general anesthetic. This figure does not include the adenoidectomies or other nose and throat work. The greater number of these general anesthesias were in children, as most of our specialists prefer local for adults. They use a general anesthetic for an adult who has had a previous tonsillectomy, who is unduly nervous or who has a history of taking local anesthetics badly.

The routine anesthesia consists of an induction with N_2O-O ether sequence followed by ether-oxygen vapor given through a mouth hook hanging at the side of the mouth or cheek. This method has been found very satisfactory. More or less ether as required can readily be given by regulating the flow of oxygen (or air) through the ether. Two bottles of ether are used in sequence that a stronger vapor may be had when desired.† This obviates the necessity of heating the ether except in rare instances.

It has been our practice to maintain a light anesthesia with reflexes not completely abolished. Such a level is often more difficult to hold than a deep narcosis, for in some patients the margin of anesthesia is very narrow. The tonsillectomist must likewise become accustomed to working in a throat in which the reflexes are still somewhat active. We feel repaid for our added trouble and effort in the benefit to our patient. In the long run we are convinced that these patients can partake of fluids and of food sooner, are less nauseated, and are brighter and stronger on leaving the hospital next morning than are those who had a profound anesthesia, which abol-

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† "Flexibility of Ether Vapor Anesthesia," Rethwilm. California State Journal of Medicine, 21, 519, December, 1923.

ishes all reflexes completely. These advantages are secondary to the main reason for a light anesthesia in this work, which is to insure against aspiration. We feel the effort is worth while, and even the physicians notice and remark that their patients make quicker and better recoveries than the deeply anesthetized ones.

Gas anesthesia for tonsillectomy has been employed for a number of cases when indicated. One of the last of these was a boy, P. H., age twelve years, who has diabetes. The anesthesia was maintained satisfactorily throughout the operation, which lasted about an hour. Throat reflexes were moderately active like those of our ether cases; suction was used as for any other tonsil case. The child was awake at once and was in excellent condition.

For radical and intranasal sinus operations the same technique is used as for eye work, though as a rule the patient is kept slightly more deeply asleep for radical work. A postnasal plug is valuable for preventing blood and secretions from reaching the pharynx. Very occasionally, especially for antrum wash, the mouth may be kept open with a Sewall or Davis mouth gag while work is done, suction being used to remove any fluid that reaches the pharynx.

Intranasal antrum operations may be done very satisfactorily with N_2O-O, using the mouth inhaler for the gas. So far it has been used by us only when especially indicated, and not for preference. The added expense of gas over ether is often the deterring factor.

The same holds true of mastoid work. Here gas is particularly desirable, for even if the chest is clear, these patients have usually had a fairly recent tonsil, sinus or chest infection which would make N_2O-O preferable to ether. Even chronic cases often come to operation because of an exacerbation following a cold. Moreover most mastoid cases easily have enough relaxation with N_2O-O only, without a trace of anoxemia, for after the skin incision has been made, the work is not painful. If the patient is resistant a little ether may be added to the gas. The amount may be almost negligible, and even if more is required, the total ether used would be much less than for an ether anesthesia. In the 298 cases we anesthetized for mastoid in the period under consideration, 218 had ether and 80 had N_2O-O.

For our esophagoscopies (32), laryngoscopies (25), and bronchoscopies (11), during these three and one-third years, ether-oxygen vapor was given. In these cases it was found advantageous to have the patient deeply asleep before work began, thus enabling the various "scopes" to be inserted without delay. Of these cases the foreign body and cord tumor ones were most interesting, but no more difficult. The relaxation of muscles obtained with an anesthetic often makes it easier to remove the foreign body, as is illustrated by the following report:

Mrs. G. H. N., age thirty-four, weight 120. Given morphin sulphate 1/4 and atropin 1/150. Fishbone had lodged in lower part of pharynx, near larynx. Repeated efforts to remove this had been made all afternoon at another hospital and at a laryngoscopist's office. Although the bone had been grasped on one occasion, it had been impossible to remove it. The anesthetic was begun at 6:55 and the patient was put deeply asleep. With all muscles relaxed and reflexes abolished, the fishbone was quickly obtained and the patient was taken from the table in good condition at 7:12.

It will be impossible to mention all the smaller groups of cases, such as fractures of the nose, which can readily be corrected under gas anesthesia given through the mouth; nasal plastic operations, all of which happen to have been done under ether vapor; myringectomies, which are almost always performed under gas. Even for adenoidectomies, gas can be given using the nasal inhaler, as for dental work.

ANESTHESIA FOB DENTAL WORK

Dental cases, besides extractions, include impacted molars and bone cysts. Of the 242 cases in the period considered, 187 were with gas. When ether is chosen it is given intrapharyngeally with a catheter through one nostril, but for N_2O-O the nasal inhaler is used with good results. Skillful packing of the tongue on the part of the dentist is a decided aid. It not only prevents blood and particles of fillings and teeth from reaching the pharynx, but avoids constant escape and waste of the nitrous oxid and oxygen.

For fractures of the jaw it is also desirable to use gas, given as in dental cases. A choice of gas is made that the patient will be awake at once and have no or almost no nausea. Vomiting with mandible and maxilla wired together can cause aspiration with immediate death from asphyxia or later from pneumonia. We have often given gas for this with a nasal inhaler, but rather prefer the intrapharyngeal method, as there is less difficulty with mechanical obstruction to respiration.

ANESTHESIA FOR HEAD SURGERY

Routine cases will not be described, as those where ether was used or where N_2O-O was given in the usual manner with a mask, such as tumors about the chin, neck, cheek or head. One recent anesthetic for tumor of the neck, just under the mandible, is of interest.

Mr. J. C. G., age sixty-five, weight 210. Preliminary morphin sulphate 1/6 and atropin 1/150. Anesthesia from 8:20 to 10:50. Dissection of tumor of neck was in progress under gas anesthesia given with a mask. The patient did not breathe well, as tongue and position of head and pressure near trachea combined, mechanically prevented gas from passing tongue and reaching lungs, even when gas pressure was increased. A large catheter was inserted through a nostril and gas administered intrapharyngeally with marked improvement. Patient returned to room in good condition.

I wish especially to speak of cases of carcinoma of the jaw or tongue or mouth. These are frequently given ether vapor intrapharyngeally through a catheter. But in any of these, and especially when a cautery is used, it is convenient to administer gas intrapharyngeally and pack the pharynx and back of the mouth to catch bleeding, pieces of tissue, etc.

If gas is given by nasal inhaler we have to leave the back of the pharynx free to force N_2O-O past

into the trachea. Though this is satisfactory for carcinoma of the lip and the like, for other cases it would cause some spattering of blood forward and might allow débris to drop into the pharynx or reach the trachea. In addition, while a cautery is in use some of the hot fumes might be inhaled. If we give it intratracheally we increase the danger of bronchitis and pneumonia. The intrapharyngeal method works well and adds no risk.

For this work the patient is anesthetized in the usual manner with the regular gas mask. When well asleep a large rectal tube is inserted through a nostril. A No. 28 or 30 tube is used if possible. That is attached to the adapter and the latter to the hose of the gas machine. It is best to have the valve of the adapter adjusted so each exhalation will raise it. The gas pressure must be sufficient that the patient will receive enough fresh gases at each inspiration without having to make an effort to draw the breath, and not too much positive pressure to injure the lungs. The proper valve adjustment helps prevent the latter, for the valve would remain raised if the pressure is great.

This past year there were a few cases of special interest in that a cautery was used in the mouth for an extended period. The following are outlines of three anesthesias on two of these patients:

Mr. P. K., age fifty-four, weight 150. Given morphin sulphate 1/6 and atropin 1/150. Cautery excision of tongue for carcinoma on September 22, 1927. The anesthetic began at 9:13. The patient was very resistant and about three breaths of ether were added to the gas near the start, but none after 9:28. The anesthetic stopped at 11 a. m. The actual cautery was used continuously from 9:45 to 10:42. The anesthesia was entirely satisfactory. The patient's condition at the close was good and he awakened at once. His recovery was uneventful, and he left the hospital in three weeks.

Mr. J. P., age forty-four, weight 155. Preliminary morphin sulphate 1/4 and atropin 1/150. Cautery excision of carcinoma of the palate and jaw on November 29, 1927. Anesthesia from 12:35 to 1:50 p. m. N_2O-O only, given by intrapharyngeal method. Course of anesthesia and condition at close good. Recovery uneventful. Patient left hospital in fourteen days.

Same patient operated for recurrence at original location on January 14, 1928. Preliminary morphin sulphate 1/4 and atropin 1/150. Gas only, given intrapharyngeally from 9:25 to 10:33 a. m. Actual cautery used. Anesthesia and condition at close good. Patient left the hospital in nine days after an uneventful recovery.

CONCLUSIONS

1. Ether or nitrous oxid-oxygen or a combination of the two can satisfactorily anesthetize all patients for head operations. The technique used must be adopted to the individual case.

2. Eye operations are best performed under N_2O-O. Though this adds to the difficulty of administration, the minimum or total lack of vomiting in a properly prepared patient and the speedy recovery are compensatory.

3. Nitrous oxid-oxygen would be the ideal anesthetic in many cases where ether is still used frequently, especially for mastoid and dental work and tumors about the head and neck.

4. When a cautery is used or when breathing is mechanically obstructed, nitrous oxid-oxygen can successfully be given intrapharyngeally.

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THE LURE OF MEDICAL HISTORY

INVOCATIO MEDICI

Code of Fushi Ikai No Ryaku, Oath of Hippocrates, and Supplication of Maimonides

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PHYSICIANS of the past had much time for philosophical reflection. Many applied their beliefs to the practice of their art. Some were interested in material principles, while others were disposed toward ethical or spiritual concepts. The doctor of medicine has either outlined his own moral code or subscribed to an ethics commensurate with the social order of his time; nevertheless professional conduct has been remarkably uniform from antiquity to the present era.

Just as religion and life's philosophy vary with the individual, so vary his principles concerning moral values. The expression of these may take the form of a code, a set of rules by which one abides. In its usual intension, a code is material and as such pertains to the physical nature of man in his relation to society and the universe. It has no spiritual appeal. One does not swear to uphold an ethical doctrine, but thinks of himself as the center about which all of his relations revolve.

The next higher form is the oath, a set of principles by which one swears to abide. An oath is a solemn affirmation regulating man's behavior toward society by stressing the ethics of the era in which it is formulated. An oath does not imply any spiritual appeal. The regular medical students of the Hippocratic era acknowledged some form of the oath before admission to apprenticeship. They proclaimed that they would abide by the principles of the guild of their master, not being responsible to society as a whole. It has been customary in the past for all medical students to solemnly consent to the Oath of Hippocrates before receiving the medical degree. We still recognize it in spirit, but not in letter; nevertheless the Oath remains a remarkable historical and literary document.

The highest form is the invocation, which is a spiritual appeal to a supreme power, and as such is immutable. He who subscribes to an invocation is responsible only to his God.

Having pointed out the differences between the code, oath, and invocation, what are the relative merits of each in the realm of medicine, and which can be considered most fundamental?

THE CODE—MATERIALISTIC ADVICE

Recently Tashiro and Fischer[1] translated the Fushi Ikai No Ryaku of Koan Ogata into English. Koan Ogata was a famous Japanese physician of the early nineteenth century. He, a man of deep ethical sensibilities, wrote his medical code, based on the Supplement (De Verpligtigen des Geneersheers) to Hufeland's Enchiridion Medicum, as a guide by which to conduct his practice.

FUSHI IKAI NO RYAKU

"I. The physician lives not for himself but for others. This is the essence of his profession. Do not look for fame or profit. Work to save others though you lose yourself. Maintain life, restore the sick, and ease the suffering of men. You have no other object.

"II. Face to face with a patient, remember only that he is sick, not his station or his wealth. Com-